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JOURNAL OF INFORMATION TECHNOLOGY THEORY AND APPLICATION

THEORY: SEEKING A PLAIN ENGLISH EXPLANATION

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ABSTRACT

Why theory, what does theory add to human inquiry? There have been literately hundreds of attempts to explain the word 'theory', many of which are either incomprehensible or in conflict with each other. It would be easy for a new researcher to fail to appreciate the centrality of theory in good quality relevant research. Is it time to stop defining what theory is and focus more on what it does for research? This paper revisits the numerous and conflicting definitions of 'theory' to search for a plain English statement of why relevant and convincing research needs theory. An explanation is suggested which is then used to review an unusual research report. Calls for more or improved theories in IS seem misguided until we are clear of the role of theory in research.

INTRODUCTION: A PERSPECTIVE

Some words, like 'critical' have become so overused and abused by a wide range of disciplines that now the word cannot be used without an accompanying clarification. In medicine 'critical' means 'near death', in engineering it means 'exact', in nuclear physics it means 'unstable', in lay use it means 'negativity', to a social theorist it often means 'criticism of society on behalf of the disempowered' and to literature scholars it means 'critique'.

AN EXPLANATORY ARGUMENT

This paper will argue that the same has become true of the word 'theory' *because* it means too many different things to too many people. The word, not the concept it was meant to convey, has become a multi-headed hydra; a mythical beast. Interpretations of what is theory include, 'an explanation why', 'a plausible 3-tupla T(PS)=<C,I,P>, from an infinite number of 3-tuplas', a hypothesis' or 'a law' to a scientist, 'ideally or hopefully' to a practitioner, 'a knowledge claim or an argument' to an epistemologist, 'an ideology' to a Marxist, a 'perspective' to a systems thinker, 'the interrelationship between the notation of music and performance practice' to a musician, 'a verb not a noun' to Karl Weick, 'policy' to a bureaucrat, and 'an explanation how to structure' to a designer. To make matters worse 'theory as an explanation why' and 'theory as in-theory (theoretically)' have become conjoint twins.

Mike Metcalfe served as the senior editor for this special issue of the journal.

Metcalfe, M., "Theory: Seeking A Plain English Explanation", *The Journal of Information Technology Theory and Application (JITTA),* 6:2, 2004, 13-21.

SUPPORTING EVIDENCE

The historical meaning of words may not be useful to define their current or common usage, however it may help unweave historically embedded meanings in the modern usages. The Oxford English Dictionary (OED, 2nded, 1991) starts its extensive presentation of the history of the usage of the word 'theory' with the ancient Greek word 'theor' meaning a spectator, one who travels in order to see things. This is linked to one meaning of 'theory' as a body of theors sent by a State to perform some religious rite. This embedded meaning is related to the modern meaning of 'theory' as a sight or spectacle. While this meaning is not in common usage it links theory to the empirical sciences. The embedded metaphor of science is sight. It is also of interest to those systems thinkers who see a theory as reflecting an intellectual frame or a perspective on some phenomenon under study.

The next word used in the Oxford English Dictionary (OED) with the same root is 'Theorem', which it defines as (paraphrasing):

> *speculation, theory, a proposition to be proved, a universal or general proposition or statement, not self evident (not axiom) but demonstrable by argument, by necessary reasoning; in mathematics a proposition embodying merely something to be proved, distinguished from a problem which is something to be done.*

From this it seems possible to tease out three initial embedded meanings in the word 'theory'. First it is a proposition, a conjecture to be proved… demonstrable by argument… something to be proved. This corresponds with the epistemologist view of theory; namely, that theory is like an argument. This will be revisited later. Mention of universal or general propositions hints at the issue of generalizability. Some users of a theory suggest it should be applicable to as wide a range of events as possible; you cannot have a theory about a one off unique case. The 'not self evident' is interesting as it aligns with Popper's ideas of theory needing to have some novelty, to be counter intuitive, beyond common sense. Lastly, the distinction between theory as something yet to be proved and a problem as something requiring action, hints at theory as an incomplete or imperfect explanation, which is the 'in-theory' or 'hopefully' meaning of theory.

CONTRIBUTION

This paper contributes by providing a 'plain' English explanation of the role of theory in human inquiry. It reviews the many definitions of theory in the IS literature drawing out the common key terms and associated concepts. It is addressed to early career researchers who may be confused about why exactly a theory is considered so important, and why academics seem to care so much about theory. The contribution made is thought valid knowledge because rational and logical argument has been used to deduce the conclusion.

The OED's definition of 'theoretic' as contemplative, as opposed to practical and empirical, sometimes opposite to practical, rather ideal or hypothetical, provides the embedded practitioners use of the word theory, as 'theoretically'. It should work 'in-theory'. The fourth of seven definitions provided by OED is 'theory' as an explanation or account of a group of facts or phenomena, a hypothesis that has been confirmed by observation, causes of something. This reaffirms the modern use of the word theory as an explanation. The fifth definition includes abstract knowledge, in theory (formerly, in the theory), according to theory. The sixth definition is a proposed explanation hence conjectures, idea, individual view. These definitions hint at the conjoint twin issue between theory as 1) an explanation and 2) in-theory. If the explanation is weak or unproven then these two different meanings are joined. For example, if I had the theory that red headed people are talkative, and this was unproven or often found to be untrue then the 'theory' as explanation would be open to criticism in the form, 'in-theory this redhead should be talkative'. These definitions also raise the issue of whether a theory has to be proved to a knowledgeable audience. Can you have your own private little theory?

This is getting very confusing, but it gets far worse when you ask the experts. It may be preferable to abandon even trying to

correct these definitions of the word. Do we need new descriptors?

Numerous management researchers writing for peer reviewed, top status, competitive journals, have provided even more interpretations. Weick (1989d) (1999b) (1999c) explains theory as a dimension rather than a category, and as an ordered set of assertions about a generic behavior or structure assumed to hold throughout a significantly broad range of specific instances; he sees a good theory as a plausible theory, needing to be interesting, novel, a source of unexpected connections, high in narrative rationality, aesthetically pleasing, and corresponding to presumed realities. Weick reports that Homan's definition of theory construction is as the concurrent development of concepts, *propositions* that state a relationship between at least two properties, and must be designed to highlight relationships, *connections* and interdependencies in the phenomenon of interest. Theory building, he claims, is virtually indistinguishable from problem solving.

Weick also (1995b) points out that theory is not data, not references, not a list of variables not a diagram, a story or a stand alone hypothesis. He seems to agree that a theory is a continuum rather than a dichotomy and that the word theory belongs in the family of words that includes guess, speculation, supposition, conjecture, proposition, hypothesis, conception, explanation, and model.

Whetten (1989e) explains that a theory is developed by first building a model made up of the factors which logically should be considered as part of the explanation of the social or individual phenomena of interest. The model should explain how the factors are related, but most importantly theory development involves explaining the underlying psychological economic or social dynamics that justify the selection of the factors and the proposed relationships. He calls this last attribute 'why'.

Eisenhardt (1989b) defines good theory as parsimonious (*explains* more with less), testable, and logically coherent. For the assessment of theory-building she asks have the investigators followed a careful analytical procedure, does the evidence support the theory, have the investigators ruled out rival explanations*?* This suggests theory is an explanation that is supported by evidence.

Pool and Van de Ven, (1989c) point out that theories attempt to capture a multifaceted reality with a finite, internally consistent statement, that they are a limited and fairly precise picture, and are reliant on a limited, carefully prescribed set of assumptions and explanatory principles that specify what can be explained or understood.

Bacharach (1989a) is more direct, as he states in his opening line that a theory is a statement of relations among concepts within a set of boundary assumptions and constraints, and a linguistic device to organize a complex empirical world. A collection of constructs and variables does not necessarily make a theory. He goes on to say that a theory is not data, typologies, categories, metaphors, or descriptions, not the features or qualities of individual things, acts or events, but rather they explain and predict events and objects. He provides a line and box picture of the components of a theory which includes constructs, variables, propositions and hypotheses bounded by assumptions.

Gregor (2002b) in developing a classification theory of theory defines theory in line with the 1981 Macquarie Dictionary 'broadly' to include conjecture, models, framework or body of knowledge. She also argues that theory should include generalizations to some degree and that causality is central to many conceptions of theory.

Hooker (1991), in his argument against the possibility of design theories, defines a theory as an explanatory account. A theory needs to be substantiated, it is an *account* of the way things are, and not the things actually are; it is not a conceptual framework, but rather uses one to make claims; in other words, a framework or tool is not a theory because it is neither true nor false. A theory uses a framework, it tells why things are, and formulae are not theory unless they explain why ideas are related.

Markus (2002c)(2003) argues that at its simplest (and most positivistic), a theory is a

relationship between two concepts. More generally, a theory is an explanation of why and/or how things happen.

Walls et al. (1992) cite Dubin to suggest a theory has:

1) 1. Units, e.g. a) user involvement, b) users satisfaction, c) top management support.
2) 2. A law of interaction, e.g. 'Increased user involvement leads to increased user satisfaction'.
3) 3. Boundary, e.g. 'Computer based information system in an organization'
4) 4. System states, e.g. 'Presence of top management support'.
5) 5. Proposition, e.g. 'Increased user involvement leads to increased user satisfaction'.
6) 6. Empirical indicators, e.g. a) measurements of user satisfaction, b) time in users meetings
7) 7. Testable hypotheses, e.g. The time spent in meetings is positively correlated to user satisfaction.

They cite Popper (1963) to suggest a good theory should be risky, prohibit things, and be tested by falsification.

AN ALTERNATIVE

I could go on endlessly reciting different definitions of theory. These derive mainly from the management research interpretations; the post-structural ones are different again. So is the 'critical' perspective on theory which argues social theories should emancipate, be heroic, be pragmatic and actionable (Churchamn, 1968). The intent here was simply to convince you that even the basic word 'theory' is something beyond re-definition by anyone in authority. It is time to use different words that carry the same message.

A qualitative scan over my extractions from the various definitions of 'theory' highlights certain recurrent words or concepts. I interpret these to include:

- Perspective (seeing, sight, intellectual frame, framework, dimension, paradigm, ideology, policy, metaphor),
- Explanation (why, how, problem solving, prediction),
- Argument (claim, statement, argument, proposition, proof, assertions, supposition, thesis, argument map),
- Evidence (connections, relationship, set of assertions, concurrent development of concepts, interdependencies, model, factors, evidence map),
- Generalizability (universal, general),
- and, in a slightly different sense,
- In-Theory (theoretically, hopefully, ideally, not practical, abstract knowledge)

The connection between these concepts that emerges for me is:

> *That research includes a novel, generalizable explanation why certain phenomena exist, which derives from an identified perspective. The explanatory why needs to be argued for using supporting evidence.*

Perspective

Looking at each of these concepts a little more; the cornerstone appears to be 'explanation' that comes from some perspective on the phenomena under consideration. This provides a useful distinction between a perspective and an explanation. For example, an explanation of the failure of systems may be that there is often inadequate quantification during the project definition. This may be said to stem from a functionalist perspective on how to develop a system. Alternatively, an explanation for systems being declared failures may be that as any project develops, participants' expectations rise at a faster rate than the budget for the project. This could be said to be a social construction of expectations perspective. The perspective results in, and drives, various explanations, but is not the explanation. Metaphors appear to provide perspectives (Morgan, 1986).

Explanation Why

While the word explanation appears in most definitions of 'theory', this is insufficient since issues of generalising and supporting the explanation with valid evidence also need addressing. Explanations may be weak, incomplete or unjustified and thus open to being labelled 'theoretical'. They may, on the other hand, be sufficient to allow predictions that appear correct in a range of situations. Explanations do need to have some general application; they need to provide some guidance as to how a series of other problems might be approached. Popper (1963) suggests these explanations need to be novel, exclude things, and open to falsification by empirical evidence.

Argument and Evidence

An explanatory why, as research, needs to be argued to a knowledgeable community as a useful contribution to knowledge. Explanations as argument statements are developed through an argumentative process involving open debate and contested supporting evidence. This corresponds with Weick's (1995b) point that theorizing, as a process, is important. Before it is fully justified an explanation will be a conjecture, a proposition, and an assertion. These words, as well as 'claim', were used in the above definitions of a theory.

Arguments as a statement have at least two nouns and a linking verb. For example, an argument may be that web based communications can help in aid projects. This in itself is not an explanation. It would be more so if written: that web based communications can assist aid projects *because* they would assist in open governance. These statements link concepts, in this case 'the web communications' with 'aid projects' and 'open governance'. Theories were said to link concepts, reveal relationships and show connections. These connections between concepts and the supporting evidence are made even more explicit in an argument map. An argument map shows what the argument is, the supporting and counter evidence and their relationships. A very simplified example is shown in Figure 1: Argument Map (van Gelder, 2003).

The explanation why is contained within the supporting and counter evidence.

While not so in this simple example, Churchman (1971) provides a holistic approach to ensuring explanations why are fully supported by a system of evidence. He argues for the need to justify explanations using logic, empirics, countering of alternative explanations, and by giving a voice to all those involved.

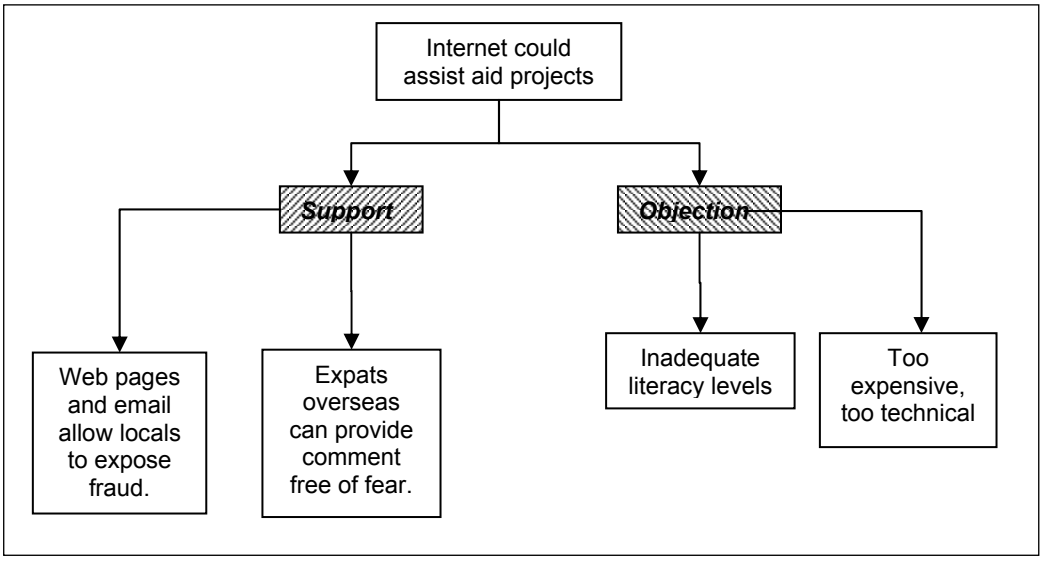

Figure 1: Argument Map

Generalizability

An explanation why a phenomenon occurs is much more useful knowledge if the explanation why allows some degree of prediction in numerous alternative situations. For example, the explanation of why objects are attracted to each other (gravity) is applicable to pendulums, sky diving and space travel. It allows for prediction of what will happen if a space vehicle flies close to a distant planet. As an aside it is not clear if we have an explanation of gravity or merely are able to use it to predict. A more social inquiry example of generalizability would be an explanation of why people appear overly abrupt when using email compared to face to face personal discussions will be more useful depending on how generic the explanation why is at predicting behavior across numerous forms of electronic or asynchronous communications. Fortunately, expressing an explanation why as argument (justified knowledge claim) tends to reveal its perceived generalizability. For example, the argument that email makes people abrupt because it removes risk of physical harm, is more specific, less generalizable, than the argument that all asynchronous communication makes people more rude because it is sent when out of range of the recipient's anger.

An Illustration

By way of an illustration as to how to apply these definitions of theory, consider the extract from *A Study In Scarlet* by Sir Arthur Conan Doyle. Sherlock Holmes, created in the 1880s, was the epitome of the scientific detective, he knows about theory. Arthur Conan Doyle made Edgar Allan Poe's Detective Dupin into a Mr Chips science teacher. Douglas Adams satired this by creating the harmless, friendly, yet self absorbed cynical post-structural detective, Dirk Gently, who has to deal with criminal who can manipulate time. The author Arthur Conan Doyle was a medical doctor at a time when medicine was beginning to emerge as a credible science and stun the general public with its rigorous and acceptable theories, which have led to an extensive library of knowledge claims. Doyle's books try and apply this scientific methodology to a particular complex social situation, namely murder.

The relationship between the use of fiction and research is reasonably well established in the organizational literature (Boje, 1995a). This paper will NOT make any attempt to write in a detective genre (eg Goodman, 2000), nor even hint at the approach of Briet and Elizinga (2002a) who invented the detective Henry Spearman. He uses economic theory to solve crimes; here, murder has to be understood as rational behavior in order to increase utility for one of the suspects. Czarniawska (1999a) provides a useful analogous approach to organizational studies and detective stories, but is not focused on research methods. She does however reference the Italian literature which tries to expose Sherlock Holmes' methodology, summarizing it as abduction (argument to the best evidence) rather than Sherlock's own claim of deduction. This paper will simply provide a very short if similar critique but one more interested in the applying various definitions of theory.

Please read the following brief extract looking for the where theory is relevant. Given this papers definition of theory as a generalizable explanation why that needs to be argued, this lens will be used after the passage to briefly help with these definition.

A Study In Scarlet By Arthur Conan Doyle

Chapter 3: The Lauriston Garden Mystery

... — look at this!" He threw me over the note which the commissionaire had brought.

"Why," I cried, as I cast my eye over it, "this is terrible!"

"It does seem to be a little out of the common," he remarked, calmly.

"Would you mind reading it to me aloud?" This is the letter which I read to him,

"My Dear Mr. Sherlock Holmes,

There has been a bad business during the night at 3, Lauriston Gardens, off the Brixton Road. Our man on the beat saw a

light there about two in the morning, and as the house was an empty one, suspected that something was amiss. He found the door open, and in the front room, which is bare of furniture, discovered the body of a gentle man, well dressed, and having cards in his pocket bearing the name of 'Enoch J. Drebber, Cleveland, Ohio, U. S. A.' There had been no robbery, nor is there any evidence as to how the man met his death. There are marks of blood in the room, but there is no wound upon his person. We are at a loss as to how he came into the empty house; indeed, the whole affair is a puzzler. If you can come round to the house any time before twelve, you will find me there. I have left everything in statu quo until I hear from you. If you are unable to come, I shall give you fuller details, and would esteem it a great kindness if you would favour me with your opinions.

Yours faithfully,

Tobias Gregson."

"Gregson is the smartest of the Scotland Yarders," my friend remarked; "he and Lestrade are the pick of a bad lot. They are both quick and energetic, but conventional—shockingly so. They have their knives into one another, too. They are as jealous as a pair of professional beauties. There will be some fun over this case if they are both put upon the scent."

I was amazed at the calm way in which he rippled on. "Surely there is not a moment to be lost," I cried, "shall I go and order you a cab?"

"I'm not sure about whether I shall go. I am the most incurably lazy devil that ever stood in shoe leather—that is, when the fit is on me, for I can be spry enough at times."

"Why, it is just such a chance as you have been longing for."

"My dear fellow, what does it matter to me? Supposing I

unravel the whole matter, you may be sure that Gregson, Lestrade, and Co. will pocket all the credit. That comes of being an unofficial personage."

"But he begs you to help him."

"Yes. He knows that I am his superior, and acknowledges it to me; but he would cut his tongue out before he would own it to any third person. However, we may as well go and have a look. I shall work it out on my own hook. I may have a laugh at them if I have nothing else. Come on!"

He hustled on his overcoat, and bustled about in a way that showed that an energetic fit had superseded the apathetic one.

"Get your hat," he said.

"You wish me to come?"

"Yes, if you have nothing better to do." A minute later we were both in a hansom, driving furiously for the Brixton Road…

"You don't seem to give much thought to the matter in hand," I said at last, interrupting Holmes…

"No data yet," he answered. "It is a capital mistake to theorize before you have all the evidence. It biases the judgment."

"You will have your data soon," I remarked, pointing with my finger; "this is the Brixton Road, and that is the house, if I am not very much mistaken."

"So it is. Stop, driver, stop!" We were still a hundred yards or so from it, but he insisted upon our alighting, and we finished our journey upon foot.

There appears to be at least perhaps four 'theories' in the passage. Being able to spot them will depend on your definition of theory. The most obvious example being the mention of theorizing near the end which is in response to Watson asking *why* Holmes did not give much thought to the matter at had. Holmes provides a generalizable explanation why, which is argued using the logic that he believed that research involved the collection of evidence before the action of theorizing is started. Further evidence would be more convincing but it is a start. It is a generalizable explanation because it is applicable to numerous other research situations. The perspective (ideology) driving Holmes' explanation appears to be that evidence is

objective, it exists like parts of a jigsaw puzzle that first have to be collected together and then combined to produce the true picture of the phenomenon under study: objectivism. Using the word 'theory' this can all be said as: Holmes has a *theory* that research involves collecting all the evidence before attempting to figure out what happened. Alternatively, 'in-theory' all the evidence should be collected first.

Another explanation why provided in the passage is why Holmes may, or may not, take up the case. He explains that he is lazy, will not get the credit but that it may be amusing to interact with the two rival policemen. This explanation is not as generalizable as the research methods explanation just mentioned, and therefore not as attractive. However, Holmes may always take cases because of their entertainment value. Again at least a little evidence was provided for the explanation why he would take the case, some supportive, some countering. The perspective driving this explanation why appears to be that humor is a good motivation to do something.

There is another explanation why provided in the passage through the letter. Gregson, the policeman, explains why the case is baffling. Again, a little evidence is supplied, it is only generalizable in the sense that other cases may be baffling for the same reasons and the perspective may be said to be that the unexplained is suspicious.

However, the explicit use of theory suggested by the passage is directly related to the murder. Holmes intends to theorize after he has collected all the evidence; theorize about what? Can you have a theory of 'who done it'; or does he mean formulate a theory of what happened? His use of the word theory this may mean he will explain who did it and how. If he was using the word theory as 'in-theory' then he may mean he will be postulating, guessing, as who did it. Alternatively, does Holmes mean he will theorize why there is a dead body in the house, or why a murder took place? This hints at the real power of a theory (explanatory why) as a research tool. To research the crime scene as a 'who done it' is not as insightful as researching it in term of 'why done it'?

In Summation

This short paper has argued that use of the word theory should be avoided *because* it is not definable any more. How can calls for more or improved theory in IS be answered until it is clear what theory does? The confusing arises partly because it has inherited a conjoint twin meaning of being both an explanation why as well as an ideal (in-theory). Practitioners abuse of theory is usually referring to the word in the 'ideal' sense. Academics use it more in the 'explanation why' sense. Various definitions from the OED and from leading management researchers were presented. They were bewildering. From these definitions five constructs emerged which appear to cover many of the characteristics. These were linked together in the claim that they could be replaced with a phrase such as:

> *That research includes a novel, generalizable explanation of why certain phenomena exist, which derives from an identified perspective. This explanation why needs to be argued for using supporting evidence.*

Using this in place of 'what is your theory' may provide a richer and clearer approach to encouraging good quality academic yet relevant research.

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